

REMARKS

Claims 1, 3-15, and 24-26 remain pending in the application. The following remarks are believed to be fully responsive to the outstanding Office Action and are believed to place the application in condition for allowance. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the remarks contained herein.

REJECTION UNDER 35 U.S.C. § 103

Claims 1, 3 and 24-26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over JP 08313890 (Hidenori et al) in view of JP 10-062604 (Hideo), U.S. Patent No. 5,220, 444 (Mitsui et al.) and U.S. Patent No. 5,850,276 (Ochi et al).

Claims 4 and 5 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over JP 08313890 (Hidenori et al) in view of JP 10-062604 (Hideo), U.S. Patent No. 5,220, 444 (Mitsui et al.) and U.S. Patent No. 5,850,276 (Ochi et al).

Claim 6 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over JP 08313890 (Hidenori et al) in view of JP 10-062604 (Hideo), U.S. Patent No. 5,220, 444 (Mitsui et al.) and U.S. Patent No. 5,850,276 (Ochi et al) as applied to claims 1,3 and 24-26 above, and further in view of U.S. Patent No. 5,973,763 (Fujimura et al.)

Claims 7-15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over JP 08313890 (Hidenori et al) in view of JP 10-062604 (Hideo), U.S. Patent No. 5,220, 444 (Mitsui et al.) and U.S. Patent No. 5,850,276 (Ochi et al) as applied to claims 1,3 and 24-26 above, and further in view of U.S. Patent No. 6,130,736 (Sasaki et al.).

These rejections are respectfully traversed.

Independent Claim 1 calls for a substrate for a liquid crystal device including a planar region and a roughened region comprising microscopic peaks and valleys. See Specification at pg. 19, Ins. 11-25. In addition, independent Claim 1 calls for “a predetermined mark made of a metal film” formed on the planar region, and “a reflecting film made of the same metal film” formed on both the microscopic peaks and valleys. See Specification at pg. 21, Ins. 6-21, and FIG. 1F. Furthermore, independent Claim 1 calls for the predetermined mark to be “separated from the reflecting film.” See FIG. 1F.

In this manner, a liquid crystal device is provided incorporating a substrate having a roughened region and a planar region. See Specification at pg. 19, Ins. 11-13. In addition, a metal film is disposed on display areas of the liquid crystal device (planar and roughened regions). See Specification at pg. 21, Ins. 6-9. The metal layer acts as a reflecting film on the roughened region and is patterned on the planar region to form an alignment mark that is separated from the reflecting film. See Specification at pg. 21, Ins. 9-11, pg. 21, Ins. 15-17, and FIGS. 1E-1F.

Hidenori, Hideo, Mitsui, and Ochi fail to teach such a relationship, either in combination or alone. Specifically, Hidenori discloses a structure of a switching element and a light reflection layer/electrode formed on an uneven portion of the substrate. Hidenori teaches that the structure of the switching element is disposed on a flat portion and a light reflection layer/electrode on an uneven portion. See Hidenori at FIGS. 1 and 9. Hidenori therefore fails to teach a predetermined mark formed on a planar region and a reflecting film formed on a roughened region. Furthermore, Hidenori fails to teach that the predetermined mark is an alignment mark, separated from the reflecting film.

Hideo discloses a method for making a micro-lens by using a photoresist and also discloses an alignment mark formed in an area separate from the micro-lens (i.e., a flat/planar portion) by using the photoresist. However, Hideo fails to teach a predetermined mark made of metal film and a reflecting film made of the same metal film.

Hideo teaches a method of making a *micro-lens* and, therefore, does not disclose a method of making a reflecting film capable of scattering or diffusing light. Specifically, if the same metal layers are used for an alignment mark and a reflecting film in the micro-lens of Hideo, the metal layer does not include a planar region for easy recognition of the alignment mark and there is no need for a roughened region to obtain a brighter display by scattering or diffusing light in a reflection film of a reflective type display. Therefore, there is no motivation to combine the teachings of Hideo with that of Hidenori, Mitsui, or Ochi to produce a structure similar to that of the present invention.

Mitsui discloses a method for making a reflective type LCD including a step of etching a substrate to form an uneven portion, and a step of forming a metal layer (reflecting film) on the uneven portion. See FIG. 1 of Mitsui. However, Mitsui fails to teach forming an alignment mark *separated* from the reflection film.

Ochi discloses an LCD device in which a driving substrate is attached to an opposite substrate having a micro-lens. Ochi discloses that “the first alignment mark 26 is formed in the same process as the production process for the drive substrate 21 when forming the metal layer 27 of aluminum (Al) or titanium (Ti) for the wiring material.” See Ochi at Col. 6, Ins. 23-27. In other words, Ochi only includes a flat portion in the substrate and does not have either a roughened region or a reflective type display.

There is no suggestion or motivation to combine the teachings of Ochi with that of Hidenori, Hideo, or Mitsui to produce a structure similar to that of the present invention.

In sum, the cited references do not teach or suggest using the *same* metal layer as both an alignment mark and a reflecting film. The alignment mark of the present invention is formed on a planar region of a substrate to aid in recognition of the mark (like a mirror surface w/o scattering or diffusing light). The reflecting film for the reflective type display includes a roughened region to obtain a brighter display by scattering or diffusing light. Therefore, the combination between forming a predetermined alignment mark on a planar surface (i.e., flat surface) of a substrate and forming a reflecting film on a roughened region of the substrate is not taught or suggested by the art of record.

In addition to the foregoing remarks, Applicants believe that the claims as filed are patentably distinct over the art of record. For instance, a suggestion or motivation to combine the teachings of Hidenori, Hideo, Mitsui, and Ochi is lacking.

Applicants note that to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. See MPEP § 2143.

As outlined above, Hidenori discloses the structure of a switching element, Hideo discloses a method of method for making a micro-lens by using a photoresist, Mitsui discloses a method for making the reflective type LCD, and Ochi discloses an LCD

device in which a driving substrate is attached to an opposite substrate having a micro-lens. A suggestion or motivation to combine the teachings of the aforementioned references is lacking. Furthermore, Applicants note that the large number of references required by the Examiner in making a rejection under 35 U.S.C. § 103 further supports this position. While Applicants understand that the sheer number of references, without more, is not enough to outweigh the obviousness-type rejection, Applicants note that a lack of teaching or suggestion to combine the Hidenori, Hideo, Mitsui, and Ochi references, in conjunction with the large number of references combined by the Examiner, is evidence of patentability and should be enough to overcome the rejection under 35 U.S.C. § 103.

Because Hidenori, Hideo, Mitsui, and Ochi do not disclose, either in combination or alone, a substrate for a liquid crystal device including a planar region and a roughened region having a predetermined mark made of a metal film formed on the planar region and a reflecting film made of the same metal film formed on the roughened region, and further because Hidenori, Hideo, Mitsui, and Ochi fail to disclose that the predetermined mark is separated from the reflecting film, and none of the cited references cures this deficiency on Hidenori, Hideo, Mitsui, and Ochi, Applicants' invention is not taught or suggested by the prior art and reconsideration and withdrawal of the rejection is respectfully requested.

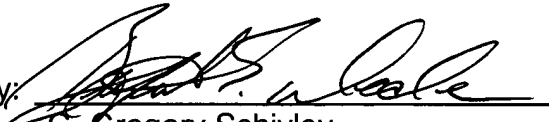
In this manner, it is believed that independent Claims 1 and 25, as well as Claims 3-15, 24, and 26, respectively dependent therefrom, are in a condition for allowance in light of the art of record. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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